YAMAHA®

AUTHORIZED PRODUCT MANUAL

MU5

TONE GENERATOR

YAMAHA

TONE GENERATOR

MU5

Owner's Manual

GENERAL MIDI

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IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!
This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

IMPORTANT:
When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

NOTE:
This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the user's manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

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Dette apparat overholder det gaeldende EF-direktiv verdrørende radiostøj.

Cet appareil est conforme aux prescriptions de la directive communautaire 87/308/CEE.

Diese Geräte entsprechen der EG-Richtlinie 82/499/EWG und/oder 87/308/EWG.

This product complies with the radio frequency interference requirements of the Council Directive 82/499/EEC and/or 87/308/EEC.

Questo apparecchio è conforme al D.M.13 aprile 1989 (Direttiva CEE/87/308) sulla soppressione dei radiodisturbi.

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The serial number of this product may be found on the bottom of the unit. You should note this serial number in the space provided below and retain this manual as a permanent record of your purchase to aid identification in the event of theft.

Model No. MU5

Serial No.

SPECIAL MESSAGE SECTION (U.S.A.)

This product utilizes batteries or an external power supply (adapter). DO NOT connect this product to any power supply or adapter other than one described in the manual, on the name plate, or specifically recommended by Yamaha.

This product should be used only with the components supplied or; a cart, rack, or stand that is recommended by Yamaha. If a cart, etc., is used, please observe all safety markings and instructions that accompany the accessory product.

SPECIFICATIONS SUBJECT TO **CHANGE:**
The information contained in this manual is believed to be correct at the time of printing. However, Yamaha reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

This product, either alone or in combination with an amplifier and headphones or speaker/s, may be capable of producing sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist. IMPORTANT: The louder the sound, the shorter the time period before damage occurs.

NOTICE:
Service charges incurred due to lack of knowledge relating to how a function or effect works (when the unit is operating' as designed) are not covered by the manufacturer's warranty, and are therefone the owners responsibility. Please study this manual carefully and consult your dealer before requesting service.

ENVIRONMENTAL ISSUES:
Yamaha strives to produce products that are both user safe and environmentally friendly. We sincerely believe that our products and the production methods used to produce them, meet these goals. In keeping with both the letter and the spirit of the law, we want you to be aware of the following:

Battery Notice:
This product MAY contain a small non-rechargeable battery which (if applicable) is soldered in place. The average life span' of this type of battery is approximately five years. When replacement becomes necessary, contact a qualified service representative to perform the replacement.

This product may also use "household" type batteries. Some of these may be rechargeable. Make sure that the battery being charged is a rechargeable type and that the charger is intended for the battery being charged.

When installing batteries, do not mix old batteries with new, or with batteries of a different type. Batteries MUST be installed correctly. Mismatches or incorrect installation may result in overheating and battery case rupture.

Warning:
Do not attempt to disassemble, or incinerate any battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by the laws in your area. Note: Check with any retailer of household type batteries in your area for battery disposal information.

Disposal Notice:
Should this product become damaged beyond repair, or for some reason its useful life is considered to be at an end, please observe all local, state, and federal regulations that relate to the disposal of products that contain lead, batteries, plastics, etc. If your dealer is unable to assist you, please contact Yamaha directly.

NAME PLATE LOCATION:
The name plate is located on the bottom of the product. The model number, serial number, power requirements, etc., are located on this plate. You should record the model number, serial number, and the date of purchase in the spaces provided below and retain this manual as a permanent record of your purchase.

Model MU5

Serial No. _____

Purchase Date _____

PLEASE KEEP THIS MANUAL

Welcome to the MU5

Congratulations and thank you for purchasing the Yamaha MU5 Tone Generator!

The MU5 is an advanced tone generator providing exceptionally ***high-quality Voices****, full* ***General MIDI compatibility****, and flexible* ***computer interfacing*** *in a highly* ***compact and portable*** *package.*

With the built-in ***host computer interface*** *and* ***MIDI terminals****, the MU5 is ideal for any computer music system — from connection to a simple laptop to integration in a complete MIDI studio. It even features a* ***two-octave keyboard*** *(with adjustable ten-octave range), allowing you to play the internal Voices and enter notes to a connected sequencer. And, since it* ***runs on batteries*** *as well, it's ready to make music wherever you take it.*

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- PC-9800 series are trademarks of NEC Corporation.

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How to Use This Manual

You are probably eager to try out your new MU5 Tone Generator right away and hear what it can do, rather than have to read through a lot of instructions before you can even get a sound out of it.

However, to get the most out of your MU5, we strongly suggest that you read the following sections in the order given:

1) Precautions

This gives you important information on how to care for your new MU5, how to avoid damaging, and how to ensure long-term, reliable operation.

2) The MU5 — What It Is and What It Can Do

This briefly provides an overview of the functions and features of the MU5 and offers some important hints on how you can use it effectively.

3) Setting Up Your MU5; The Controls of the MU5

The first section shows you how to set up your MU5 for basic operation, and the second introduces you to the panel controls and connectors.

4) Playing the Demo Song; Using the MU5 — The Play Mode

These two sections get you started using the MU5. The first guides you through the Demo Song, while the second gives you the basic operation procedures you'll be using when you play the MU5.

5) Setting Up the MU5 in Your Music System; Using the MU5 with a Computer or Sequencer

These sections provide all you need to know to effectively integrate the MU5 into your present computer music system.

6) Muting and Soloing Parts; Editing

Mute and Solo are useful in song playback, while editing operations prepare you for digging. in deeper to the advanced functions of the MU5.

7) Reference

Once you're familiar with everything above, lightly go over this comprehensive guide to all editing functions. You won't need (or want) to read everything at once, but it is there for you to refer to when you need information about a certain feature or function.

8) Appendix

Finally, use the sections in the Appendix as necessary. For example, the **Index** will come in handy when you need to quickly find information on a specific topic. Other sections, such as the **Voice List, Troubleshooting** and **Error Messages** provide additional useful information.

Precautions

Your MU5 will give you years of reliable service if you follow the simple precautions below:

- **LOCATION**

Keep the instrument away from locations where it is likely to be exposed to high temperatures (such as direct sunlight) or humidity. Also avoid locations which are subject to excessive dust accumulation or vibration which could cause mechanical damage.

- **USE THE CORRECT POWER ADAPTOR**

Use only the recommended PA-3, PA-4 or PA-40 Power Adaptor for supplying power to the instrument. Use of another adaptor may cause serious damage to the instrument or the adaptor itself.

- **MAKE SURE POWER IS OFF WHEN MAKING OR REMOVING CONNECTIONS**

To prevent damage to the instrument and other connected equipment, always turn off the power prior to connecting or disconnecting cables. Also, turn the power off when the instrument is not in use, and disconnect the power adaptor during electric storms.

- **HANDLE THE INSTRUMENT WITH CARE**

Although the instrument has been constructed to withstand the rigors of normal use for optimum sturdiness and reliability, avoid subjecting it to strong physical shocks (such as dropping or hitting it). Since the MU5 is a precision-made electronic device, also avoid applying excessive force to the various controls. When moving the instrument, first unplug the power adaptor and all other cables to prevent damage to cords and jacks. Always unplug cables by gripping the plug firmly, **not** by pulling on the cable.

• CLEAN WITH A SOFT, DRY CLOTH

Never use solvents such as benzine or thinner to clean the instrument, since these will damage the cabinet finish or dull the keys. Wipe clean with a soft, dry cloth. If necessary, use a soft, clean, slightly moistened cloth — making sure to wipe the case off again with a dry cloth.

• ELECTROMAGNETIC INTERFERENCE

Avoid using the unit near televisions, radios or other equipment generating electromagnetic fields. Proximity to such equipment may cause the unit to malfunction, and may generate interference noise in the other appliance as well.

• DO NOT OPEN THE CASE OR TRY REPAIRING THE INSTRUMENT YOURSELF

The instrument contains no user-serviceable parts. Never open the case or tamper with the internal circuitry in any way, since doing so may result in damage to the instrument. Refer all servicing to qualified Yamaha service personnel.

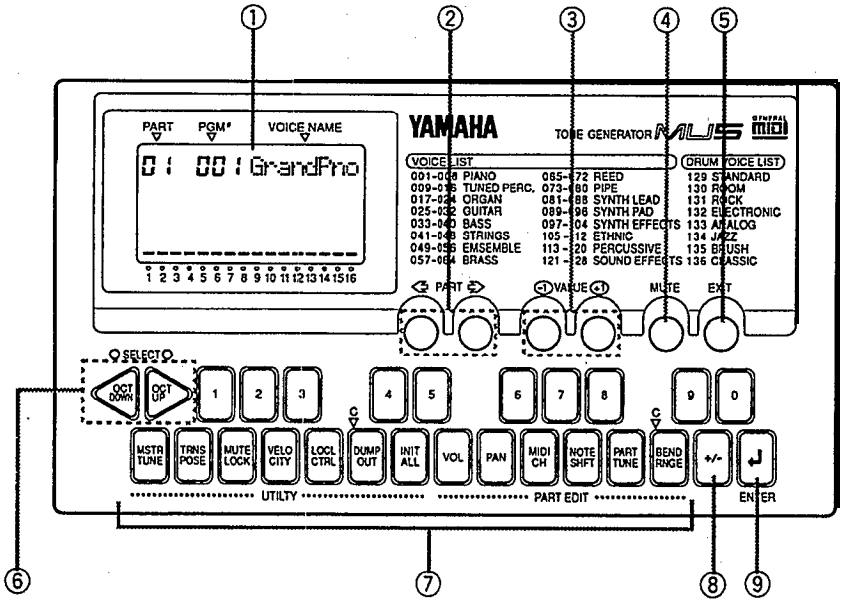
• MIDI CABLES

When connecting the instrument to other MIDI equipment, be sure to use only high-quality cables made especially for MIDI data transmission. Also, avoid using cables longer than 15 meters, since long cables can result in data errors.

Yamaha is not responsible for damage caused by improper handling or operation.

The Controls of the MU5

■ Front Panel



① Display

In the Play mode, this shows the Part number and the currently selected program number and Voice name for the Part. It also shows the octave setting (when set to a value other than normal) and acts as a "level meter," showing the velocity values for each Part as they are played.

In the Edit modes, this shows the relevant values and, where applicable, a graphic display of the set values.

② [◀PART] [PART▶] buttons

For selecting the desired Part. (In some of the Edit functions, these may not be available.) Hold down either button to rapidly advance through the values.

③ [-1 VALUE] [+1 VALUE] buttons

For changing the value of the selected function or parameter. In the Play mode, these are used to change the program number at the selected Part. In the Edit modes, these are used to change the current function's value or turn a function on or off. Hold down either button to rapidly advance through the values.

④ [MUTE] button

For using the Mute and Solo functions. (See page 29.)

⑤ [EXIT] button

For leaving the Edit modes and returning to the Play mode.

⑥ [OCT DOWN] (OCTAVE DOWN) and [OCT UP] (OCTAVE UP) buttons

For changing the octave transposition of the MU5's keyboard. These also double as [SELECT] buttons, allowing you to select the functions of the Edit modes.

⑦ Keyboard

This two-octave keyboard is used to play the Voices of the MU5. It can also be used to play notes on a connected external tone generator or enter notes to a connected sequencer or computer.

The white keys double as editing controls, while the black keys also function as number keys. (Used with the [SELECT] buttons.)

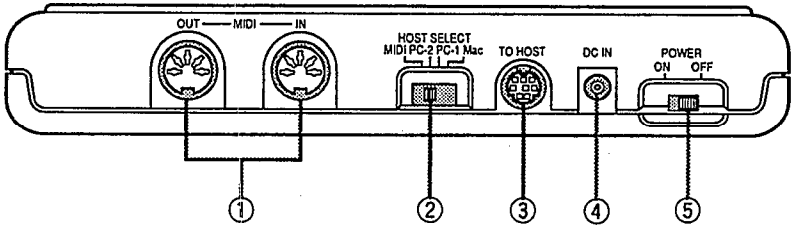
⑧ [+/-] button

For switching between positive (+) and negative (-) values during editing. (Used with the [SELECT] buttons.)

⑨ [ENTER] button

For actually entering values during editing. (Used with the [SELECT] buttons.)

■ Rear Panel



① MIDI OUT and MIDI IN terminals

For connection to other MIDI devices, such as a MIDI keyboard, tone generator, sequencer, or to a computer that has a MIDI interface. (See page 20.)

② HOST SELECT switch

For selecting the type of connected device. (See pages 17 - 20.)

③ TO HOST terminal

For connection to a host computer that does not have a MIDI interface. (See pages 17 - 20.)

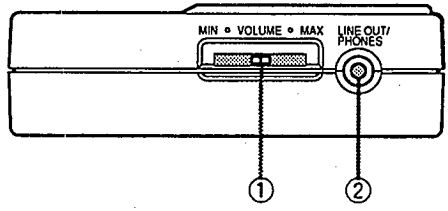
④ DC IN jack

For connection to the AC power adaptor.

⑤ POWER switch

For turning on the power to the unit.

■ Side Panel



① VOLUME control

For adjusting the overall level of the MU5

② LINE OUT/PHONES jack

For connection to an amplifier/speaker system or a set of stereo headphones.

The MU5 -What It Is and What It Can Do

■ What It Is...

The MU5 is a compact, highly portable and easy-to-use tone generator. It features full General MIDI Level 1 compatibility with 128 General MIDI Voices and 8 drum kits. The MU5 has 28-Voice polyphony and is 16-Part multi-timbral. In other words, the MU5 has 16 different Parts, each with its own Voice, so that up to 16 different Voices can be sounded simultaneously.

With the built-in two-octave keyboard, you can play any of the Voices directly from the MU5 itself. Or you can play them from a connected MIDI keyboard. In addition, the MU5 also has a **TO HOST** terminal for easy interfacing with a computer, allowing you to play the Voices using your favorite music software. This is where the advanced multi-timbral capabilities come in, letting you play up to 16 different Voices at the same time.

■ About General MIDI

General MIDI is a new addition to the worldwide MIDI standard. MIDI, as you know, stands for Musical Instrument Digital Interface, and makes it possible for various electronic musical instruments and other devices to "communicate" with each other. For example, by connecting a sequencer to the MU5's **MIDI IN** terminal, you could play back a song on the sequencer using the Voices of the MU5.

So, where does General MIDI fit in all of this? One of the most important features of General MIDI is in the standardization of Voices. This means that a song recorded in the General MIDI format can be played back on any General MIDI compatible tone generator and sound just as the composer intended. For example, if there is an alto sax solo in the song, it will be played by an alto sax Voice on the General MIDI tone generator (and not by a tuba or harpsichord!). Since the MU5 is fully compatible with General MIDI, you can take advantage of the vast wealth of musical material recorded in that format.

■ What It Can Do...

Here are a few ideas on how you can use the MU5. The list below is not comprehensive, but is meant to be a general guide to the possibilities and provide a starting point or springboard for your own creative ideas and explorations.

• Using With MIDI Keyboard

Use the MU5 as supplementary tone generator with your MIDI keyboard and play the Voices of both instruments in a layer together. Or, if your keyboard has the capability, program a "split" so that the notes you play on the right side of the keyboard play only the Voices of the MU5.

• Using With Other MIDI Controllers

Even if you're not a keyboard player, you can still play the MU5 with other types of MIDI controllers. For example, you can use a MIDI percussion controller to play the drum and percussion sounds of the MU5.

■ When Connected to a Computer or Sequencer

• Home Studio Setup

The MU5 integrates easily into any existing setup. If you have a MIDI keyboard, computer and sequencing software, the MU5 with its high-quality Voices and multi-timbral capabilities can expand your home studio system.

• Carry It With You

If you have a laptop computer (and sequencing software), simply connect the MU5, plug in some headphones and you've got a complete music making system that's ready to go wherever you go. Use it for composing, arranging, practicing or making/playing demos for your band.

- **Perform With It**

Bring it with you to a gig — as long as there's a MIDI keyboard on stage, you can use the high-quality sounds of MU5 in your performance.

- **Multimedia**

Since it's portable and compatible with General MIDI, the MU5 is a natural for multimedia applications. Bring it with you to a presentation — since the computer interface is built-in to the MU5, it hooks up instantly and easily to the computer's serial port or printer port, without the need for any other equipment.

■ About the Modes of the MU5

The MU5 has three operating modes: Play, Utility and Part Edit. (Utility and Part Edit are the two edit-related modes of the MU5.)

- **Play Mode**

This is the normal mode of the MU5, the one in which you normally play and select the internal Voices (either from the built-in keyboard or a connected MIDI device), select Parts, and use the Mute and Solo functions.

- **Utility Mode**

The Utility mode lets you set functions related to the overall operation of the MU5, such as Master Tune, Transpose and Velocity settings. Included also are utility operations, such as sending bulk data to a data storage device, and initializing of the MU5 settings.

- **Part Edit Mode**

The Part Edit mode allows you to change certain settings for each individual Part, such as the Volume, Pan and individual tuning settings for each Part. The internal Voices can be sounded during editing, allowing you to hear the effects of your edits.

Setting Up Your MU5

■ Power Supply

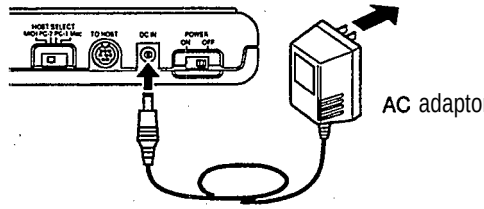
Your MU5 will run either from an optional AC adaptor or batteries. Follow the instructions below according to the power source you intend to use.

NOTE

Before making any connections, make sure that all equipment to be connected is turned off.

• Using a Power Adaptor

Connect one end of the power adaptor (Yamaha PA-3, PA-4 or PA-40) to the DC IN jack on the rear panel, and the other end to a suitable electrical outlet.



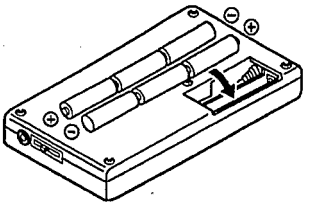
CAUTION!

■ Do not attempt to use an AC adaptor other than the PA-3, PA-4 or PA-40. The use of an incompatible adaptor may result in irreparable damage to the MU5, and even pose a serious shock hazard.

■ Be sure to disconnect the power adaptor from the outlet when the MU5 is not in use.

● Using Batteries

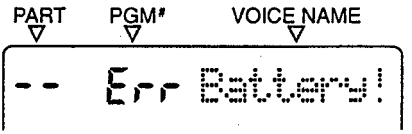
To use the MU5 on battery power, insert six 1.5V AA size (SUM-3, R-6 or equivalent) manganese or alkaline batteries in the battery compartment. Make sure to follow the polarity indications on the bottom case (and as shown below).



Securely replace the battery compartment cover when done installing the batteries.

● When to Replace the Batteries

When the battery power runs too low to operate the MU5, the following display will appear:



When this happens, replace all batteries with a complete set of six new batteries of the same type.

CAUTION!

■ In order to avoid losing any important memory settings when battery power becomes low, turn off the MU5, then immediately connect a power adaptor (to supply continuous power) and replace all batteries.

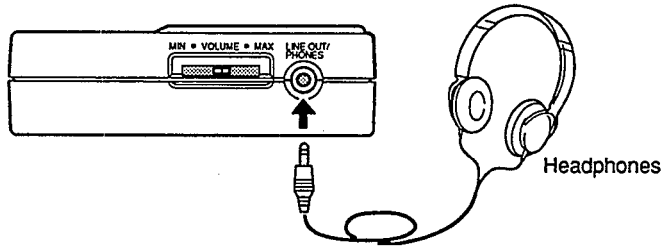
■ NEVER mix old and new batteries or different types of batteries! Also, to prevent possible damage due to battery leakage, remove the batteries from the instrument if it is not to be used for an extended period of time.

■ Audio Connections

In order to hear your MU5, you'll have to make certain audio connections. You can listen to the MU5 by using a set of stereo headphones or by connecting it to an amplifier/speaker system.

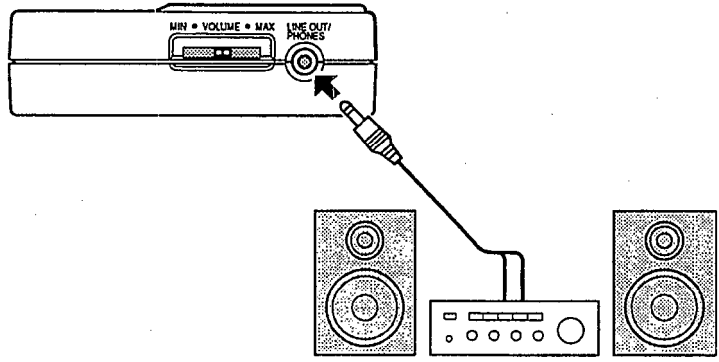
● Using Headphones

Connect a set of stereo headphones (with a stereo miniature plug) to the **LINE OUT/PHONES** jack.



● Using an External Sound System

Connect the **LINE OUT/PHONES** jack on the MU5 to the stereo inputs of an amplifier/speaker system by using a "Y" cable (stereo miniature plug to dual RCA pin plugs), available from many audio and musical instrument dealers.



Setting Up the MU5 in Your Music System

As you learned in the section **The MU5 — What It Is and What It Can Do** on page 11, the MU5 can be integrated into a variety of setups. It would be impossible to cover all connection possibilities in a short manual as this; however, the section below will help in quickly setting up the MU5 and using it in your system.

■ Connecting With a Computer

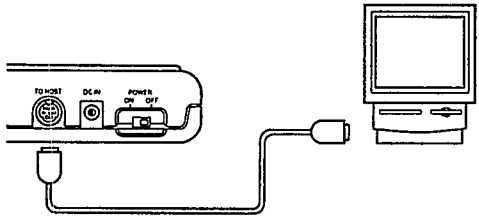
The MU5 features a built-in host computer interface, allowing you to directly connect it to your computer — eliminating the need of installing a special MIDI interface to your computer. The MU5 can be used with the following computers: Apple Macintosh, IBM PC and the NEC PC-9800 Series.

If your computer has a MIDI interface you may want to connect the MU5 to it, rather than using the host computer interface on the MU5. (See the section **"Connecting to Other MIDI Devices"** on page 20.)

Depending on the computer or interface used, set the **HOST SELECT** switch to the appropriate setting: MIDI, PC-l (NEC computers), PC-2 (IBM and clones), or MAC (Macintosh). For information on the types of cables that can be used for connection, see the section **"MIDI/Computer Connecting Cables"** on page 22.

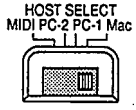
Macintosh

Follow these instructions if you have an Apple Macintosh that is not equipped with an external MIDI interface. Connect the **TO HOST** terminal on the MU5 to the Modem or Printer port on the Macintosh.



Operation

1 Set the **HOST SELECT** switch to MAC.



2 Connect the MU5 to the host computer, as shown in the illustration above. Use a standard Macintosh cable (8-pin Mini DIN on both ends; see page 22).

3 Turn on the host computer. then the MU5.

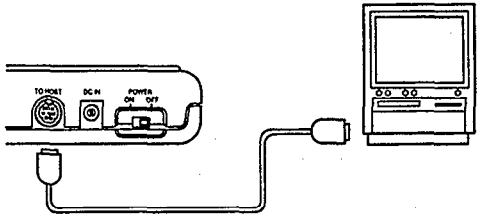
4 Start up your music software, and set up the appropriate options on the software for operation with the MU5.

- The options you may have to set include:
  - MIDI Interface Type → Standard MIDI Interface
  - MIDI Time Piece → Off
  - Clock → 1 MHz

Other options and settings may have to be made as well. Refer to the owner's manual of your particular music software for more information.

IBM PC and Clones

Follow these instructions if you have an IBM PC/AT or compatible computer that is not equipped with an external MIDI interface. Connect the **TO HOST** terminal on the MU5 to one of the computer's serial ports, COM 1 or COM 2.

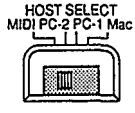


NOTE

■ Your music software must be able to recognize the **TO HOST** connection. Consult your Yamaha dealer for more details. If your software is not compatible, you can still use the MU5 by installing a MIDI interface (internal card or external) to the computer.

Operation

1 Set the **HOST SELECT** switch to PC-2.



2 Connect the MU5 to the host computer, as shown in the illustration above. Use a standard computer cable (8-pin Mini DIN to 9-pin D-SUB; see page 22).

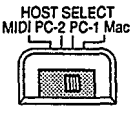
3 Turn on the host computer, then the MU5.

4 Start up your music software, and set up the appropriate options on the software for operation with the MU5.

Refer to the owner's manual of your particular music software for more information.

NEC PC-9800 Series

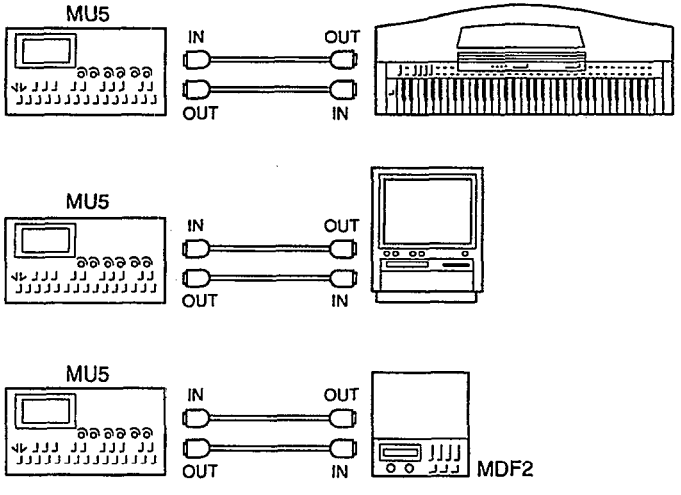
The NEC PC-9800 Series computers are widely used in Japan. For use with these computers, set the **HOST SELECT** switch on the MU5 to PC-1. Operation is the same as for the PC-2 setting explained above. The only difference between PC-l and PC-2 is the communication baud rate. (See page 46.)



■ Connecting to Other MIDI Devices

The MU5 is equipped with MIDI IN and OUT terminals, allowing you to use it in any MIDI system. Example uses for the built-in MIDI interface include:

- Connecting to a **MIDI keyboard** (for playing the sounds of the MU5 from that keyboard).
- Connecting to a **MIDI tone generator** (for playing the sounds of that tone generator from the MU5).
- Connecting to a **computer equipped with a MIDI interface** (either internal or external).
- Connecting to a **hardware sequencer** (such as the Yamaha QY20).
- Connecting to a **MIDI data storage device** (such as the Yamaha MDF2 MIDI Data Filer).



Operation

1 Set the **HOST SELECT** switch to MIDI.

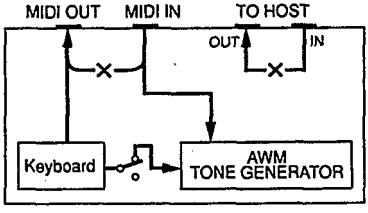
2 Connect the MU5 to the appropriate MIDI device, as shown in the illustrations above. Use a standard MIDI cable (see page 22).

3 Turn on the connected device, then the MU5.

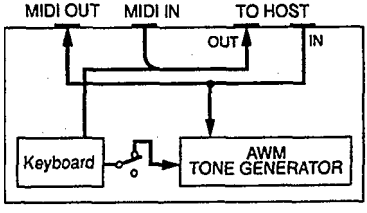
4 If you are using a computer, start up your music software, and set up the appropriate options on the software for operation with the MU5.

■ Data Flow Block Diagram

- When HOST SELECT switch is set to MIDI:



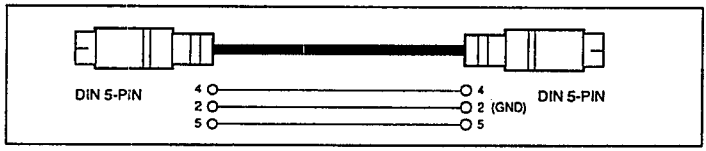
- When HOST SELECT switch is set to Mac, PC-1 or PC-2:



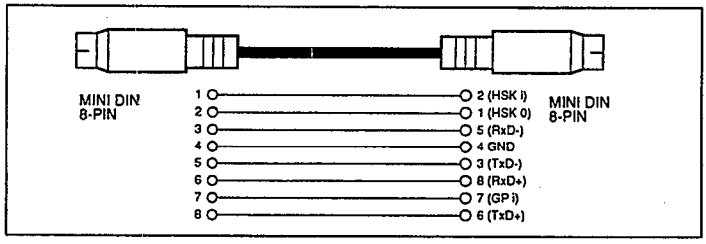
* When Local Control is set to Off, the keyboard of the MU5 cannot be used to play the internal AWM Voices. (See page 35.)

■ MIDI/Computer Connecting Cables

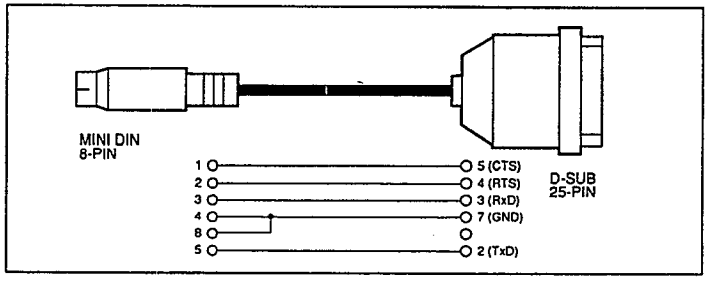
- **MIDI** Standard MIDI cable. Maximum length 15 meters.



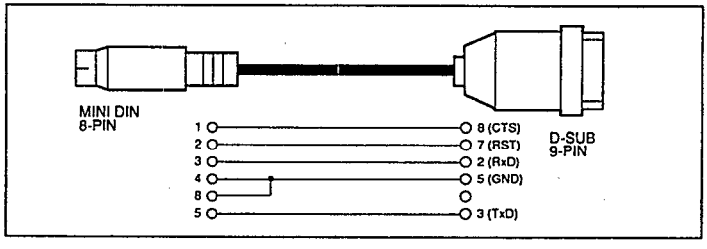
- **Macintosh** Apple Macintosh Peripheral cable (M0197). Maximum length 2 meters.



- **PC-1** 8-pin MINI DIN to D-SUB 25-pin cable. If your PC-1 type computer has a 9-pin serial port, use the PC-2 type cable. Maximum length 1.8 meters.



- **PC-2** 8-pin MINI DIN to D-SUB 9-pin cable. Maximum length 1.8 meters.

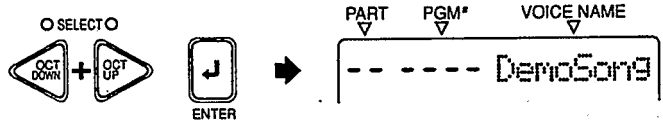


Playing the Demo Song

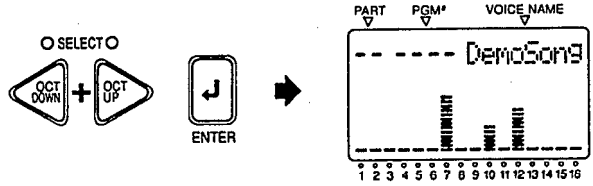
Now that you've set everything up properly, try playing the built-in Demo Song. This showcases the high-quality Voices and the AWM tone generation system of the MU5.

Operation

1 Simultaneously hold down the [SELECT] buttons and press The [ENTER↵] button.



2 Simultaneously hold down the [SELECT] buttons and press the [ENTER↵] button again to start the song.



3 The Demo Song starts playing immediately and repeats indefinitely until stopped (in step 4 below). Playback of the individual Parts of the song is shown graphically by the "level meter" bars in the display.

NOTE

■ During Demo Song playback, all panel controls (except the [EXIT] button and the **VOLUME** control) cannot be used.

4 To stop playback of the song, press the [EXIT] button.

5 To exit from the Demo Song function, press the [EXIT] button again.

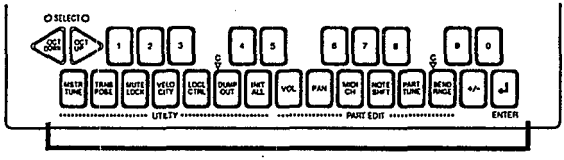
Using the MU5 — The Play Mode

Now that you've heard the sophisticated capabilities of the MU5, try playing with some of them yourself in the Play mode.

When you turn on the power of the MU5 or press the [EXIT] button, the Play mode is automatically called up. In this mode, you can select any of the 16 Parts for playing, and select which Voice is played in each Part.

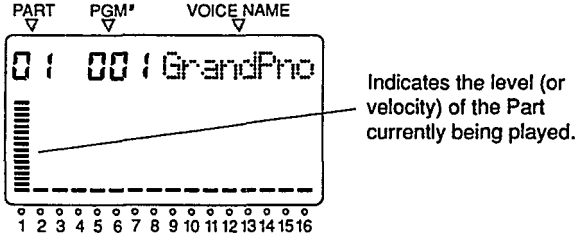
Playing the Keyboard

The built-in two-octave keyboard allows you to play the Voices directly from the MU5 itself, without having to use an external keyboard. Since what you play on the keyboard is also transmitted via **MIDI** (or the **TO HOST** terminals), you can also play an external tone generator or enter notes to a sequencer.



Keyboard range: E to E
(C notes are indicated on panel)

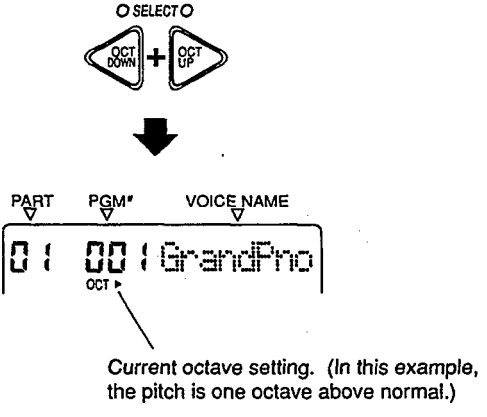
As you play the keyboard, notice the bars that appear in the display at the current Part. These serve as a kind of "level meter," like those found on a mixing console or tape recorder, indicating the level (or velocity) of the Voice at the corresponding Part.


PART
PGM#
VOICE NAME
01 001 GrandPno
Indicates the level (or velocity) of the Part currently being played.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

The velocity of the keyboard is fixed; in other words, each note you play sounds at a predetermined volume. You can change this velocity setting from the Velocity parameter in the Utility mode. (See page 34.)

Changing the Octave Setting

Though the keyboard itself is two octaves, you can actually play the MU5 over a ten-octave range. To do this use the OCT DOWN (OCTAVE DOWN) and OCT UP (OCTAVE UP) buttons. Press the OCT DOWN button to lower the pitch by an octave, and press the OCT UP button to raise it by an octave. The current octave setting is shown in the display. (No indication appears when the octave setting is normal.)



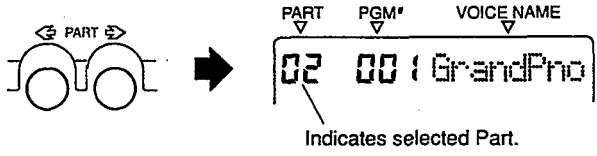
Current octave setting. (In this example, the pitch is one octave above normal.)

Selecting a Part and Changing the Voice

Now, let's select a different Part and change its Voice.

Operation

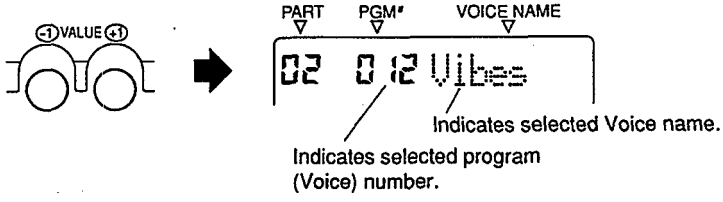
1 Use the PART buttons to select Part 2. (If Part 1 is shown in the display, simply press the PART▶ button once.)



A total of 16 Parts are available, and each is shown in the display.

2 Use the VALUE buttons to select program number 12, "Vibes." (You can also use the number keys on the keyboard to select a Voice; see boxed section on the next page.)

> **NOTE**
>
> ■ You can rapidly advance to the desired number by briefly holding down the appropriate VALUE button.

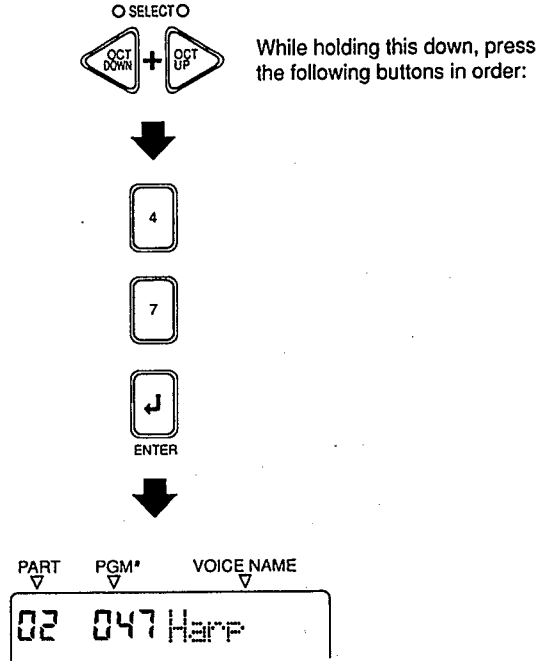


The MU5 has a total of 128 Voices, plus 8 different drum kits. An "OFF" setting (a value of 137, or higher) is also available for turning off the selected Part. (See page add-2 for a list of the available Voices.)

■ Using the Number Keys to Select a Voice

In the Play mode, you can also use the number keys to select a Voice's program number.

To do this, simultaneously hold down the [SELECT] buttons and press the number of the value you wish to set. For example, to set a value of 47, simultaneously hold down the [SELECT] buttons and press [4], then [7], and finally press the [ENTER] button to actually enter the new value.



Using the MU5 with a Computer or Sequencer

By connecting the MU5 to a computer or sequencer, you have a powerful music system for playing back songs and even and creating your own songs, using the Voices of the MU5.

Make sure that the MU5 is properly connected to the computer or sequencer, and that your music software is ready to run. (Refer to pages 17 – 21 for connection examples and instructions.) If you are using the **TO HOST** terminal or if both MIDI terminals are properly connected, you should be able to play songs from your software and enter notes to the software from the MU5.

Using the MU5 with a MIDI Data Storage Device

You can also use the MU5 with a MIDI data storage device, such as the Yamaha MDF2 MIDI Data Filer. This lets you save or back up whatever changes you've made in the settings of the Utility and Part Edit modes. Then, when you want to recall those settings, you can transfer the appropriate data from the storage device.

The MDF2 also allows you to play compatible song data on the MU5 directly from the MDF2 itself, without the need of a sequencer.

Make sure that the MU5 is properly connected to the data storage device (via MIDI). (Refer to page 20 for the connection example.) Use the Dump Out function (page 36) to send data to the device. Also refer to the owner's manual of your data storage device for specific operating instructions in receiving or sending data.

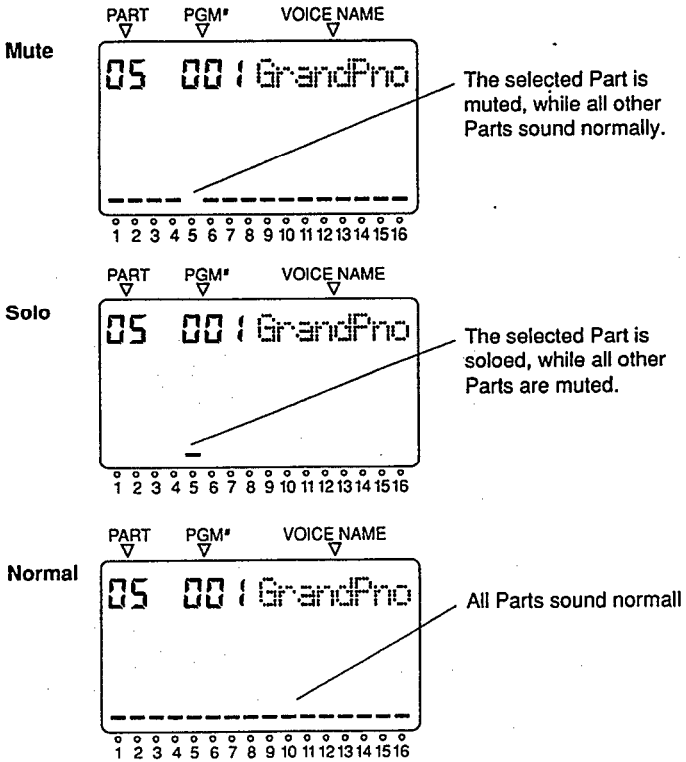
Muting and Soloing Parts

While a song is playing back on your computer or sequencer, you can selectively mute or solo any of the 16 Parts of the MU5. Mute lets you silence one Part to hear how all of the other Parts sound without it. Solo lets you isolate a single Part, to hear how that Part sounds by itself.

Mute and Solo are effective tools that help you as you edit the Parts, since they allow you to better hear how the changes you make affect specific Voices as well as the overall sound.

Operation

During playback, press the [MUTE] button. Each press cycles through the three functions: Mute, Solo and Normal operation.


Mute
PART
PGM#
VOICE NAME
05 001 GrandPno
The selected Part is muted, while all other Parts sound normally.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Solo
PART
PGM#
VOICE NAME
05 001 GrandPno
The selected Part is soloed, while all other Parts are muted.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Normal
PART
PGM#
VOICE NAME
05 001 GrandPno
All Parts sound normall
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

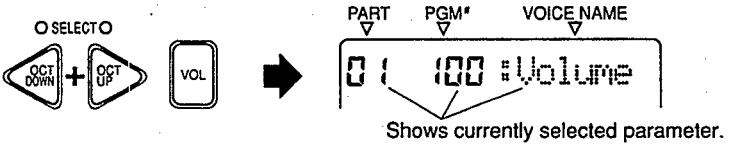
Editing

The editing features of the MU5 provide various controls for changing the Parts and setting other important operating functions. Among other things, these let you set the Volume or pitch of each Part independently, change the Velocity of the built-in keyboard, and save all of your edits to a connected computer, sequencer or data storage device.

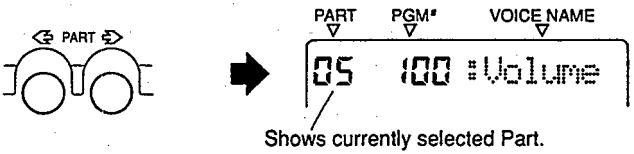
The MU5 has two edit modes: Utility and Part Edit. The Utility mode functions are related to the overall operation of the MU5, while the Part Edit mode provides independent controls for each Part. (See the **Reference** section of this manual for information about the specific editing functions.)

Operation

1 Simultaneously hold down the [SELECT] buttons and press the white key on the keyboard corresponding to the function you wish to edit.

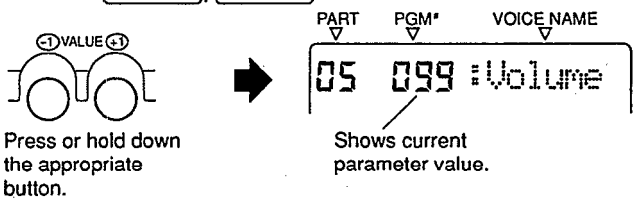


2 (For Part Edit only:) Use the [PART] buttons to select the Part you wish to edit.

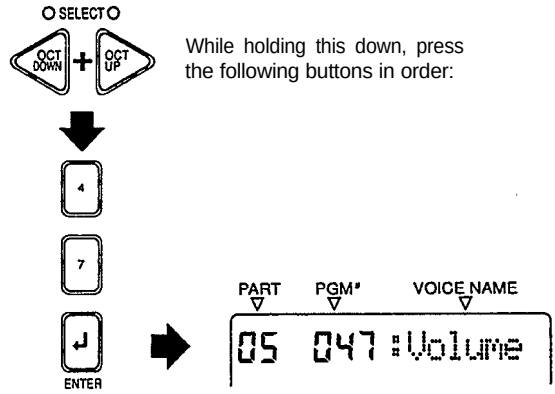


3 You can change the value or setting in two different ways:

- **Use the [-1 VALUE +1]/[-1 VALUE +1] buttons.**



● **Use the number keys on the keyboard.**
While holding down the [SELECT] buttons, press the number of the value you wish to set. For example, to set a value of 47, simultaneously hold down the [SELECT] buttons and press [4], then [7], and finally press the [ENTER] button to actually enter the new value.



NOTE

■ If you try to enter an "illegal" value — a number outside the range of the parameter — the MU5 enters the closest value to the one you've typed in. For example in the Volume parameter, the range of the parameter is 1 - 127, and if you try to enter 356, the MU5 automatically enters 127.

4 Press the [EXIT] button to return to the Play mode, or repeat the steps above to edit another function.

This concludes our short tour of the basic setup and general operations of the MU5. Now that you've learned how to operate your MU5, look through the **Reference** section that follows for more detailed information on the Utility and Part Edit modes.

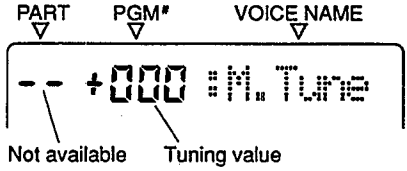
Reference

◆

Utility Mode

The Utility mode lets you set functions related to the overall operation of the MU5, such as Master Tune, Transpose and Velocity settings. Included also are utility operations, such as sending bulk data to a data storage device, and initializing of the MU5 settings.

Master Tune



Range **+/- 100 cents**

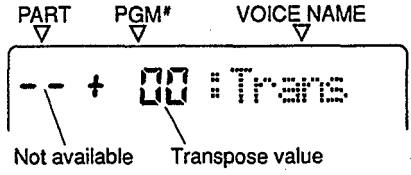
Default **0**

This determines the overall fine tuning of the MU5's Voices. It also affects the pitch of the individual drum/percussion sounds of the drum kits. Master Tune is especially useful for adjusting the pitch of the MU5 when playing with other instruments. (The actual pitch of each Voice depends also on the other pitch related parameters: Transpose, Note Shift and Part Tune.)

NOTE

■ At around 440 Hz, 1 Hz is approximately equal to 4 cents.

Transpose

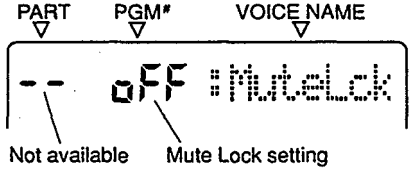


Range **+/- 24 semitones**

Default **0**

This determines the overall key transposition of the MU5's Voices, over a total range of four octaves in semitone steps. A Transpose setting of "0" results in normal pitch. Unlike Master Tune, it has no effect on the individual drum/percussion sounds of the drum kits.

Mute Lock

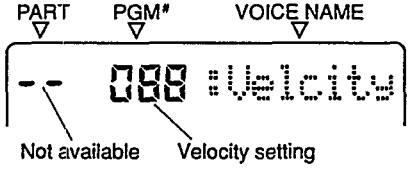


Settings **Off, On** (Use the [VALUE]/[VALUE] buttons to change this setting.)

Default **Off**

This determines whether or not the Part Mute status of the MU5 is reset when receiving a **GM Mode On** message. Generally, this message is automatically transmitted to the MU5 as part of General MIDI song data. When Mute Lock is off, this resets the Mute status of the Parts on the MU5. If you want to keep the current Mute settings and disable this reset, set Mute Lock to **On.** (For more information on the Mute function, see page 29.)

Velocity



Range 1 – 127

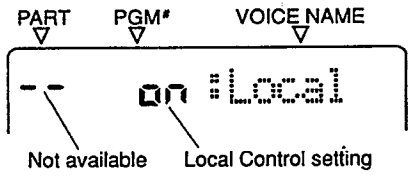
Default 88

This determines the note on velocity of the built-in keyboard. All notes that you play from the MU5's keyboard will be at this fixed velocity, and sound at the same level. This velocity is also transmitted to connected devices via the **MIDI** or **TO HOST** terminals. However, this does not affect the incoming velocity of notes played from a connected sequencer or external keyboard.

NOTE

■ Keep in mind that when playing the MU5's keyboard, the actual sound level of a Part also depends on the Volume setting in the Part Edit mode. If the Volume setting is at or near the minimum, the Part may be very low in level, no matter what the Velocity setting made here.

Local Control



(Settings) **Off, On** (Use the [VALUE]/[VALUE] buttons to change this setting.)

(Default) **On**

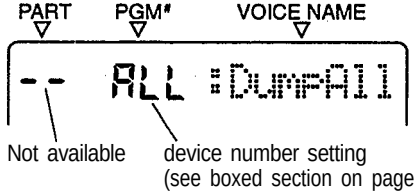
This determines whether or not the internal tone generator responds to the notes you play on the MU5's keyboard. Setting this to **Off** effectively disconnects the MU5 keyboard from the internal tone generator. However, notes played on the keyboard are still transmitted via the **TO HOST** or **MIDI OUT** terminals.

HINT

■ One useful application of Local Control is when you've connected the MU5 to another tone generator and want to play **only** that tone generator and leave the MU5 Voices silent.

■ A more common application would be when using the MU5 keyboard to input notes to a sequencer. If the sequencer is also set up to play back data using the Voices of the MU5, when you play the MU5, it will be sounding its own voices twice — once from the keyboard, and after a very brief delay, again from the MIDI data coming from the sequencer. This not only decreases the available polyphony of the MU5 by half, but also creates an undesirable flanging sound. To remedy the problem, set Local Control to **Off.**

Dump Out

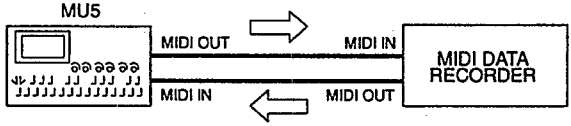


Settings 1 – 16, All

Default All

This function allows you to save the current parameter settings of the MU5 to a MIDI sequencer, computer or a MIDI data recorder (such as the Yamaha MDF2 MIDI Data Filer).

- **Saving & Restoring Data via MIDI**



Bulk Dump data can be sent and received using the MIDI IN and MIDI OUT connections.

- **Saving & Restoring Data via TO HOST**

Bulk Dump data can be sent and received using the TO HOST connection.

Operation **1 Make sure that the MU5 is properly connected to the device and that the HOST SELECT switch is properly set.**

When using the MIDI teminals; connect the **MIDI OUT** of the MU5 to the **MIDI IN** of the data recorder. See the **Saving & Restoring Data via MIDI** illustration above.) Also, set the **HOST SELECT** switch to **MIDI.**

When using the **TO HOST** terminal, make sure that the **HOST SELECT** switch is set corresponding to the device to be used. (Refer to pages 17 – 21 for more on host computer connections.)

2 Simultaneously hold down the [SELECT] buttons and press [ENTER↵].

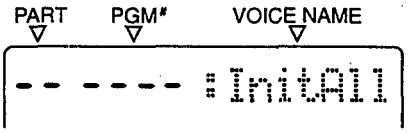
A "Sending" message appears in the display during the operation. Once started, the operation cannot be stopped. When the operation is completed, the MU5 returns to the normal Play mode.

■ Setting **the Device Number**
The settings allow you to select the device number specified for the data dump. if you are using more than one MU5, set a different device number **(**1 – 16) for each unit before sending the data. If you have only one MU5, set this to **ALL.**

■ When using the number keys to enter a value for device number, the value "0" corresponds to "ALL."

● To reload the data from the data recorder back to the MU5:
Make sure that the devices are properly connected (see the **Saving & Restoring Data via MIDI** illustrations above); and execute the appropriate data transfer operation from the data recorder. (Refer to the owner's manual of that device for instructions.) The MU5 automatically receives incoming bulk data.

Initialize All



This operation allows you to restore the original factory settings of the MU5

CAUTION!

■ Using initialize All will erase whatever settings you've made on the MU5 If you have important settings you wish to keep, store them to a MIDI data recorder with the Dump Out function. (See page 36.)

Operation

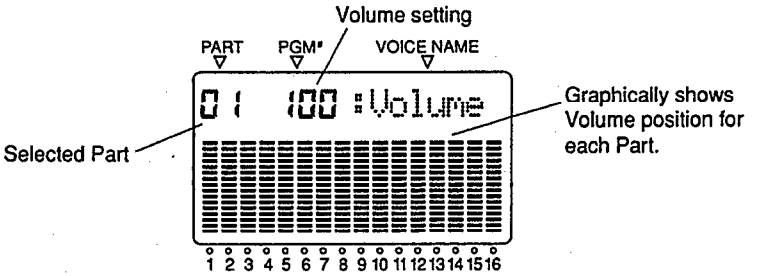
Simultaneously hold down the [SELECT] buttons and press [ENTER↵].

When the operation is completed, a "Finished" message appears in the display and the MU5 returns to the normal Play mode.

Part Edit Mode

The Part Edit mode allows you to change certain settings for each individual Part. Keep in mind, though, that the settings you make may automatically change when playing songs on a connected sequencer. For example, the song data may include different Volume, Pan and Note Shift settings for each Part.

Volume


Volume setting
PART
PGM
VOICE NAME
01 100 Volume
Selected Part
Graphically shows Volume position for each Part.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Range 0 – 127

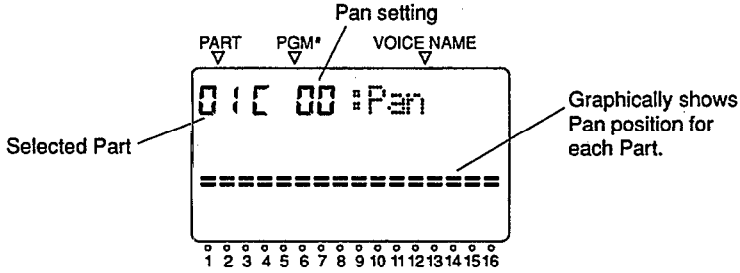
Default 100

This determines the Volume of the selected Part. The Volume setting is graphically represented by bars in the display.

NOTE

■ Keep in mind that when playing the MU5's keyboard, the actual sound level of a selected Part also depends on the Velocity setting in the Utility mode. If the Velocity setting is at or near the minimum, the Part may be very low in level, no matter what the Volume setting made here.

Pan

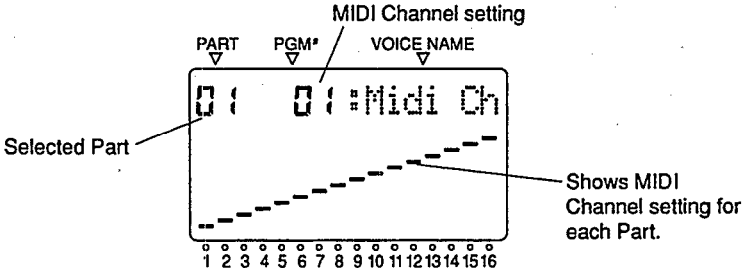

Pan setting
PART
PGM*
VOICE NAME
01 C 00 :Pan
Selected Part
Graphically shows Pan position for each Part.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Range **L64- C 00 - R 63**

Default **C 00**

This determines the stereo position of a selected Part. The Pan position is graphically represented by bars in the display. A double bar (equal sign) in the middle represents the center position (C 00), while a bar at the top indicates full right (R 63) and a bar at the bottom indicates full left (L 64).

MIDI Channel

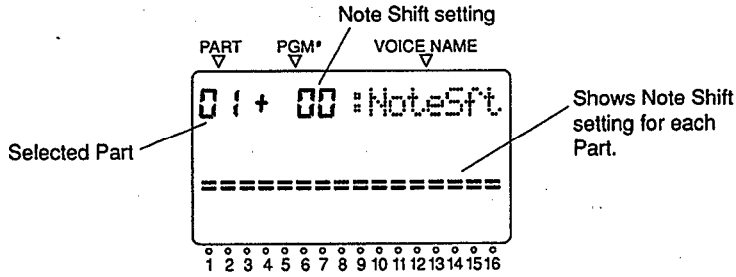

MIDI Channel setting
PART
PGM*
VOICE NAME
01 01 :Midi Ch
Selected Part
Shows MIDI Channel setting for each Part.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Range 1 – 16, Off

Default Part 1 = 1, Part 2 = 2, Part 3 = 3, etc.

This determines the MIDI Receive Channel for each Part. For example, if a Part is set to channel 1, it responds only to MIDI data received over channel 1. For full multi-timbral operation, in which each Part is used to play a different Voice, use the default setting. (The "Off" setting can also be selected by using the number key **0.)**

Note Shift

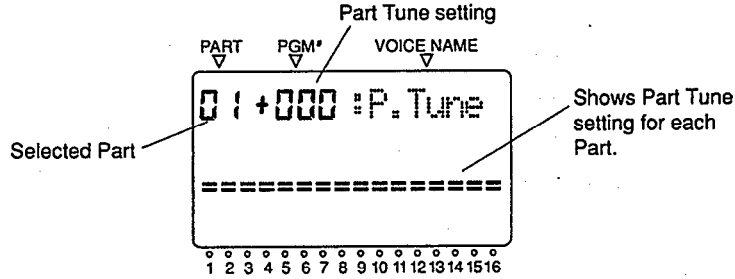

Note Shift setting
PART
PGM*
VOICE NAME
01 + 00 :NoteSft.
Selected Part
Shows Note Shift setting for each Part.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Range -24 – +24 semitones

Default **00**

This determines the key transposition (Note Shift) setting for each Part. Keep in mind that the actual key transposition of the Part also depends on the global Transpose setting in the Utility menu (see page 33).

Part Tune

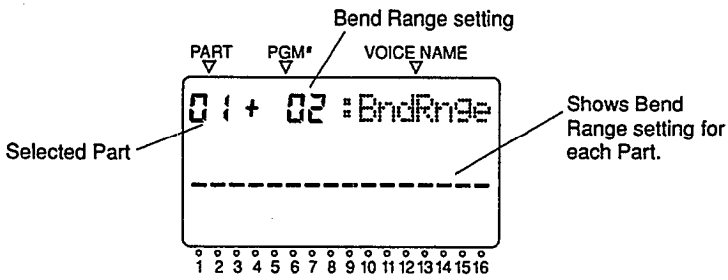

Part Tune setting
PART
PGM*
VOICE NAME
01 +000 :P.Tune
Selected Part
Shows Part Tune setting for each Part.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Range +/- 100 cents

Default 0

This determines the fine tuning setting for each Part. It also affects the pitch of the individual drum/percussion sounds of the drum kits. Keep in mind that the actual pitch setting of the Part also depends on the global Master Tune setting in the Utility menu (see page 32).

Pitch Bend Range


Bend Range setting
PART
PGM*
VOICE NAME
01 + 02 :BndRnge
Selected Part
Shows Bend Range setting for each Part.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Range -24 – +24 semitones

Default +02

This determines the maximum range over which the pitch of the Part can be changed by Pitch Bend messages. Most MIDI keyboards feature a Pitch Bend wheel, which allows you to "bend" the pitch up or down as you play. Pitch Bend data can also be recorded to a sequencer along with normal note data, and then played back using the MU5.

The default setting (+02) allows you to continuously change the pitch by a whole tone, up or down. Positive values raise the pitch when you move the Pitch Bend wheel up, while negative values lower the pitch when you move the wheel up.

Appendix

◆

Troubleshooting

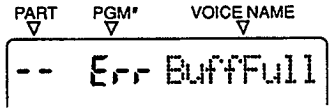
Even though the MU5 is exceptionally easy to use, it may occasionally not function as you expect it to. If that happens, check the possible problems and solutions below before assuming that the instrument is faulty.

Problem	Possible Cause and Solution
No power.	• If you are using an AC adaptor, check that the adaptor is properly plugged into both the AC outlet and the MU5 (See page 14.) • If you are using batteries, check that a fresh set of batteries are properly installed in the battery compartment? (See page 15.)
No sound.	• Check that the side panel volume control is set to an appropriate level. (See page 10.) • Check that other volume-related parameters are set to appropriate levels. (See Velocity, page 34, and Volume, page 39.) • Check that the Parts being played are properly turned on. (See page 26.) • Check the Mute and Solo settings. (See page 29.) If a Part is being muted, or an empty Part is being soloed, you may not get any sound.

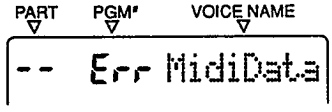
Problem	Possible Cause and Solution
No sound when playing the keyboard on the MU5.	• Check that Local Control is set to on. (See page 35.) Also check the points for "No Sound" above.
No sound when playing the MU5 from a computer, sequencer or external keyboard.	• Check all MIDI connections, making sure that the MIDI OUT of the external device is connected to the MIDI IN of the MU5, and that the MIDI IN of the external device is connected to the MIDI OUT of the MU5. (See page 20.) Or, if you are using the TO HOST terminal with a computer, make sure that the terminal is properly connected to the computer and that the HOST SELECT switch is properly set for your particular computer. (See page 17.)
Notes are cut off or omitted.	• The maximum polyphony of the MU5 may be exceeded. The MU5 can play no more than 28 notes at once.
When using a sequencer or computer, an unusual "flanging" sound occurs and/or not all notes seem to sound.	• Check that Local Control is set to off. (See page 35.) Also check the settings on your sequencer or computer (such as "MIDI Echo" or "Echo Back").
Even though Local control function is set to off, the MU5 continues to sound when playing the built in keyboad.	• This is nomal when routing the MU5 to a sequencer (or computer) and the sequencer's "MIDI Echo" or "Echo Back" is set to on.

Error Messages

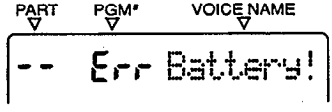
Errors may occur from time to time, and when they do the MU5 will display a message to indicate the type of problem so that you can rectify it and return to normal operation.



Too much MIDI data is being received by the MU5 at one time. Reduce the amount of data being sent to the MU5.



An error has been detected in the MIDI data received by the MU5. Check all relevant settings, then try receiving the data again.



The battery voltage is too low for proper operation. Replace the old batteries with a set of new ones. (See page 15.)

Specifications

- **Tone Generation Method**
  Advanced Wave Memory (AWM)
- **Polyphony**
  28-note (Dynamic allocation)
- **Multi-timbral Capacity**
  16-Part
- **Demo Song**
  1 (not editable, stored in ROM)
- **Display** Custom LCD (54.5 mm x 29.4 mm)
- **Controls**

  [◄PART], [PART►], [-1 VALUE], [+1 VALUE], [MUTE], [EXIT], [OCT DOWN], [OCT UP], keypad (including number buttons, UTILITY and PART EDIT buttons, [+/-] button and [ENTER↵] button); POWER switch, HOST SELECT switch, VOLUME control
- **Jacks and Terminals**
  MIDI OUT and MIDI IN terminals, TO HOST terminal (8-pin mini DIN), DC IN jack, OUTPUT/PHONES jack
- **Host Computer Interface and Data Baud Rate**
  MIDI — 31,250 bps (bits per second)
  Mac — 31,250 bps
  PC-l — 31,250 bps
  PC-2 — 38,400 bps
- **Power Supply**
  YAMAHA PA-3, PA-4 or PA-40 AC Adaptor (sold separately)
  Six "AA" size, SUM-3, R-6 or equivalent batteries (sold separately)
- **Dimensions (W x D x H)**
  188 x 104 x 33 mm (7-3/8" x 4-1/8" x 1-1/3")
- **Weight**
  340g (12 oz.) (w/o batteries)

* Specifications subject to change without notice.

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Voice List
&
MIDI Data Format

Voice List

● Voice List

Pgm #	Instrument Group	Name	LCD
1	Piano	Acoustic Grand Piano	GrandPno
2		Bright Acoustic Piano	BritePno
3		Electric Grand Piano	E.Grand
4		Honky-tonk Piano	HnkyTonk
5		Electric Piano 1	E.Piano1
6		Electric Piano 2	E.Piano2
7		Harpsichord	Harpsi.
8		Clavi	Clavi.
9	Chromatic	Celesta	Celesta
10	Percussion	Glockenspiel	Glocken
11		Music Box	MusicBox
12		Vibraphone	Vibes
13		Marimba	Marimba
14		Xylophone	Xylophon
15		Tubular Bells	TubulBel
16		Dulcimer	Dulcimer
17	Organ	Drawbar Organ	DrawOrgn
18		Percussive Organ	PercOrgn
19		Rock Organ	RockOrgn
20		Church Organ	ChrchOrg
21		Reed Organ	ReedOrgn
22		Accordion	Acordion
23		Harmonica	Harmnica
24		Tango Accordion	TangoAcd
25	Guitar	Acoustic Guitar (nylon)	NylonGtr
26		Acoustic Guitar (steel)	SteelGtr
27		Electric Guitar (jazz)	Jazz Gtr
28		Electric Guitar (clean)	CleanGtr
29		Electric Guitar (muted)	Mute.Gtr
30		Overdriven Guitar	Ovrdrive
31		Distortion Guitar	Dist.Gtr
32		Guitar Harmonics	GtrHarmo

Pgm #	Instrument Group	Name	LCD
33	Bass	Acoustic Bass	Aco.Bass
34		Electric Bass (finger)	FngrBass
35		Electric Bass (pick)	PickBass
36		Fretless Bass	Fretless
37		Slap Bass 1	SlapBas1
38		Slap Bass 2	SlapBas2
39		Synth Bass 1	SynBass1
40		Synth Bass 2	SynBass2
41	Strings	Violin	Violin
42		Viola	Viola
43		Cello	Cello
44		Contrabass	ContraBs
45		Tremolo Strings	Trem.Str
46		Pizzicato Strings	Pizz.Str
47		Orchestral Harp	Harp
48		Timpani	Timpani
49	Ensemble	String Ensemble 1	Strings1
50		String Ensemble 2	Strings2
51		Synth Strings 1	Syn.Str1
52		Synth Strings 2	Syn.Str2
53		Choir Aahs	ChoirAah
54		Voice Oohs	VoiceOoh
55		Synth Voice	SynVoice
56		Orchestra Hit	Orch.Hit
57	Brass	Trumpet	Trumpet
58		Trombone	Trombone
59		Tuba	Tuba
60		Muted Trumpet	Mute.Trp
61		French Horn	Fr.Horn
62		Brass Section	BrasSect
63		Synth Brass 1	SynBras1
64		Synth Brass 2	SynBras2

Pgm #	Instrument Group	Name	LCD
65	Reed	Soprano Sax	SprnoSax
66		Alto Sax	Alto Sax
67		Tenor Sax	TenorSax
68		Baritone Sax	Bari.Sax
69		Oboe	Oboe
70		English Horn	Eng.Horn
71		Bassoon	Bassoon
72		Clarinet	Clarinet
73	Pipe	Piccolo	Piccolo
74		Flute	Flute
75		Recorder	Recorder
76		Pan Flute	PanFlute
77		Blown Bottle	Bottle
78		Shakuhachi	Shakhchi
79		Whistle	Whistle
80		Ocarina	Ocarina
81	Synth Lead	Lead 1 (square)	SquareLd
82		Lead 2 (sawtooth)	Saw.Lead
83		Lead 3 (calliope)	CaliopLd
84		Lead 4 (chiff)	Chiff Ld
85		Lead 5 (charang)	CharanLd
86		Lead 6 (voice)	Voice Ld
87		Lead 7 (fifths)	Fifth Ld
88		Lead 8 (bass+lead)	Bass &Ld
89	Synth Pad	Pad 1 (new age)	NewAgePd
90		Pad 2 (warm)	Warm Pad
91		Pad 3 (polysynth)	PolySyPd
92		Pad 4 (choir)	ChoirPad
93		Pad 5 (bowed)	BowedPad
94		Pad 6 (metallic)	MetalPad
95		Pad 7 (halo)	Halo Pad
96		Pad 8 (sweep)	SweepPad

Pgm #	Instrument Group	Name	LCD
97	Synth Effects	FX 1 (rain)	Rain
98		FX 2 (soundtrack)	SoundTrk
99		FX 3 (crystal)	Crystal
100		FX 4 (atmosphere)	Atmosphr
101		FX 5 (brightness)	Bright
102		FX 6 (goblins)	Goblins
103		FX 7 (echoes)	Echoes
104		FX 8 (sci-fi)	SF
105	Ethnic	Sitar	Sitar
106		Banjo	Banjo
107		Shamisen	Shamisen
108		Koto	Koto
109		Kalimba	Kalimba
110		Bagpipe	Bagpipe
111		Fiddle	Fiddle
112		Shanai	Shanai
113	Percussive	Tinkle Bell	TnklBell
114		Agogo	Agogo
115		Steel Drums	SteelDrm
116		Woodblock	WoodBlok
117		Taiko Drum	TaikoDrm
118		Melodic Tom	MelodTom
119		Synth Drum	Syn.Drum
120		Reverse Cymbal	RevCymbl
121	Sound Effects	Guitar Fret Noise	FretNoiz
122		Breath Noise	BrthNoiz
123		Seashore	Seashore
124		Bird Tweet	Tweet
125		Telephone Ring	Telphone
126		Helicopter	Helicptr
127		Applause	Applause
128		Gunshot	Gunshot

• Drum Map

Pgm#				1	9	17	25
Note#	Note	Key Off	Alternate	Standard Kit	Room Kit	Rock Kit	Electronic Kit
23	B 0			Click L			
24	C 0			Click H			
25	C# 0			Brush Tap			
26	D 0	0		Brush Swirl L			
27	D# 0			Brush Slap			
28	E 0	0		Brush Swirl H			Reverse Cymbal
29	F 0	0		Snare Roll			
30	F# 0			Castanet			Hi Q
31	G 0			Snare L		SD Power M	Snare M
32	G# 0			Sticks			
33	A 0			Bass Drum L		Bass Drum M	Bass Drum H
34	A# 0			Open Rim Shot			
35	B 0			Bass Drum M		Bass Drum H	BD Power
36	C 1			Bass Drum H		BD Power	BD Gate
37	C# 1			Side Stick			
38	D 1			Snare M		SD Rock	SD Power L
39	D# 1			Hand Clap			
40	E 1			Snare H		SD Power Rim	SD Power H
41	F 1			Floor Tom L	Room Tom 1	Power Tom 1	E Tom 1
42	F# 1		1	Closed Hi Hat			
43	G 1			Floor Tom H	Room Tom 2	Power Tom 2	E Tom 2
44	G# 1		1	Pedal Hi-Hat			
45	A 1			Low Tom	Room Tom 3	Power Tom 3	E Tom 3
46	A# 1		1	Hi-Hat Open			
47	B 1			Mid Tom L	Room Tom 4	Power Tom 4	E Tom 4
48	C 2			Mid Tom H	Room Tom 5	Power Tom 5	E Tom 5
49	C# 2			Crash Cymbal 1			
50	D 2			High Tom	Room Tom 6	Power Tom 6	E Tom 6
51	D# 2			Ride Cymbal 1			
52	E 2			Chinese Cymbal			
53	F 2			Ride Cymbal Cup			
54	F# 2			Tambourine			
55	G 2			Splash Cymbal			
56	G# 2			Cowbell			
57	A 2			Crash Cymbal 2			
58	A# 2			Vibraslap			
59	B 2			Ride Cymbal 2			

[ ] : Same as Standard Kit

26	33	41	49
Analog Kit	Jazz Kit	Brush Kit	Classic Kit
Reverse Cymbal			
Hi Q			
SD Power H		Brush Slap L	
Bass Drum M			
BD Analog L			
BD Analog H			Gran Cassa
Analog Side Stick			
Analog Snare L		Brush Slap	
Analog Snare H		Brush Tap	
Analog Tom 1	Jazz Tom 1	Brush Tom 1	Jazz Tom 1
Analog HH Closed 1			
Analog Tom 2	Jazz Tom 2	Brush Tom 2	Jazz Tom 2
Analog HH Closed 2			
Analog Tom 3	Jazz Tom 3	Brush Tom 3	Jazz Tom 3
Analog HH Open			
Analog Tom 4	Jazz Tom 4	Brush Tom 4	Jazz Tom 4
Analog Tom 5	Jazz Tom 5	Brush Tom 5	Jazz Tom 5
			Hand Cym.Open L
Analog Tom 6	Jazz Tom 6	Brush Tom 6	Jazz Tom 6
			Hand Cym.Closed L
			Hand Cym.Open H
			Hand Cym.Closed H

Pgm#				1	9	17	25
Note#	Note	Key Off	Alternate	Standard Kit	Room Kit	Rock Kit	Electronic Kit
60	C 3			Bongo H			
61	C# 3			Bongo L			
62	D 3			Conga H Mute			
63	D# 3			Conga H Open			
64	E 3			Conga L			
65	F 3			Timbale H			
66	F# 3			Timbale L			
67	G 3			High Agogo			
68	G# 3			Low Agogo			
69	A 3			Cabasa			
70	A# 3			Maracas			
71	B 3	0		Samba Whistle H			
72	C 4	0		Samba Whistle L			
73	C# 4			Guiro Short			
74	D 4			Guiro Long			
75	D# 4			Claves			
76	E 4			Wood Block H			
77	F 4			Wood Block L			
78	F# 4			Cuica Mute			Scratch Push
79	G 4			Cuica Open			Scratch Pull
80	G# 4		2	Triangle Mute			
81	A 4		2	Triangle Open			
82	A# 4			Shaker			
83	B 4			Jingle Bell			
84	C 4			Bell Tree			
85	C# 4			Hi Q			

[ ] : Same as Standard Kit

	26	33	41	49
	Analog Kit	Jazz Kit	Brush Kit	Classic Kit
	Analog Conga H			
	Analog Conga M			
	Analog Conga L			
	Scratch Push			
	Scratch Pull			

MIDI Data Format

1. General

1.1 Application

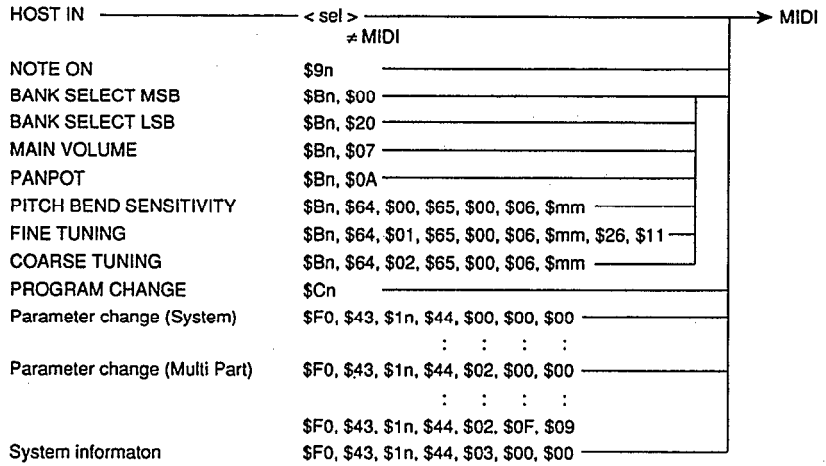
This following MIDI information applies to the MU5.

1.2 Applicable Standards

MIDI 1.0 Standard.

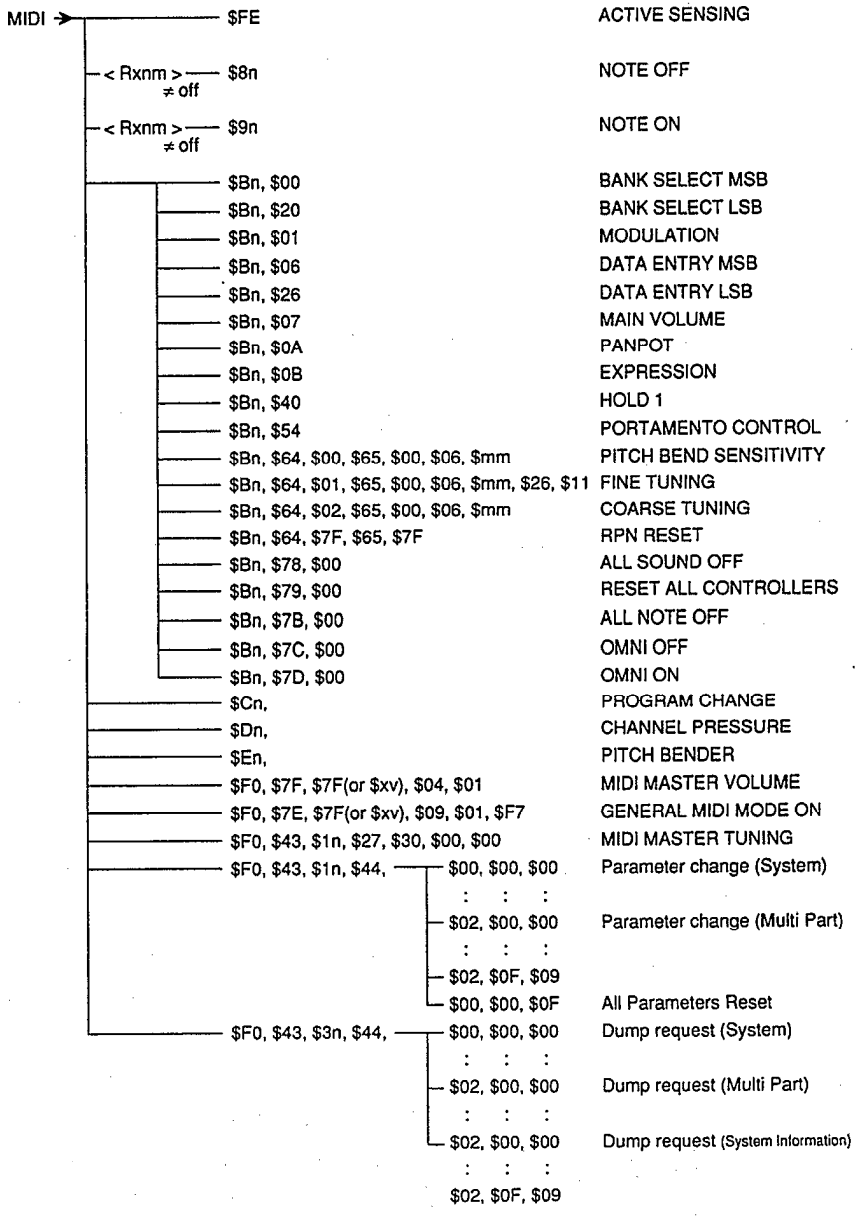
2. MIDI Reception / Transmission Diagrams

2.1 Transmit Condition



sel = Host Select
n = MIDI channel

2.2 Receive Condition



n = MIDI channel
Rxnm = Receive note message

3. Channel Messages

3.1 Transmission

3.1.1 Note ON/OFF

Note Range = E-2 – E8
Velocity = 0 – 127

3.1.2 Control change

The following parameters can be transmitted.

Control #	Parameter	Range
0	Bank select MSB	0, 127
32	Bank select LSB	0
6	Data Entry MSB	0 – 127
38	Data Entry LSB	0 – 127
7	Main volume	0 – 127
10	Pan	0 – 127
100	RPN LSB	0 – 127
101	RPN MSB	0 – 127

3.1.2.1 Bank Select

Control #	Parameter	Range
0	Bank select MSB	0 : GM melody Voice 127 : GM rhythm Voice
32	Bank select LSB	0 : Fixed

The bank select MSB switches between melody Voices and rhythm Voices. The bank select LSB is fixed at 0.

3.1.2.2 Data Entry

Control #	Parameter	Range
6	Data entry MSB	0 – 127
38	Data entry LSB	0 – 127

This is used in conjunction with the RPN parameter (see sections 3.1.2.5 and 3.1.4).

3.1.2.3 Volume

Control #	Parameter	Range
7	Main volume	0 – 127

3.1.2.4 Pan

Control #	Parameter	Range
10	Pan	0 – 127

A value of 0 corresponds to the left channel, and a value of 127 to the right.

3.1.2.5 (RPN) LSB / MSB

Control #	Parameter	Range
100	RPN LSB	0 – 127
101	RPN MSB	0 – 127

(Refer to section 3.1.4)

3.1.3 Channel Mode Messages

Channel Mode Messages are not transmitted.

3.1.4 RPN (Registered Parameter Number)

The RPN MSB and RPN LSB must be sent first for the desired parameter setting, followed by the data entry values.

RPN MSB LSB	Data Entry MSB LSB	
$00 $00	$mm --	Pitch bend sensitivity mm : $00 - $18 (0 – 24 semitones) "--" : Not used Range is two octaves, selectable in one semitone steps. When power is turned on, this is set to two semitones.
$00 $01	$mm $ll	Master fine tuning (mm, ll) : ($00,$00) – ($40,$00) – ($7F,$7F) (-8192x100/8192) – 0 – (+8192x100/8192 cents)
$00 $02	$mm --	Master coarse tuning mm : $28 – $40 – $58 (-24 – 0 – +24 semitones) "--" : Not used

3.2 Reception

3.2.1 Note ON/OFF

Receive note range = C-2 – G8
Velocity range = 1 – 127 (Note On velocity only.)

When Receive Note Message is set to OFF, reception is disabled. When drum part data is received, the MU5 sometimes does not respond to Note Off messages (depending on the transmitted instrument).

3.2.2 Control Change

The following control change parameters are applicable to the MU5:

Control #	Parameter	Range
0	Bank select MSB	0 – 127
32	Bank select LSB	0
1	Modulation	0 – 127
6	Data entry MSB	0 – 127
38	Data entry LSB	0 – 127
7	Main volume	0 – 127
10	Pan	0 – 127
11	Expression	0 – 127
64	Hold 1	0 – 127
84	Portamento control	0 – 127
100	RPN LSB	0 – 127
101	RPN MSB	0 – 127

3.2.2.1 Bank Select

Control #	Parameter	Range	
0	Bank select MSB	0	: Melody Voice of GM
		1 – 126	: No sound
		127	: Rhythm Voice of GM
32	Bank select LSB	0	: Fixed

Processing of bank select messages is paused until a program change message is received. The bank select MSB switches between a melody Voice and rhythm Voice. The bank select LSB is fixed at 0.

3.2.2.2 Modulation

Control #	Parameter	Range
1	Modulation	0 – 127

This affects the vibrato depth.

3.2.2.3 Data Entry

Control #	Parameter	Range
6	Data entry MSB	0 – 127
38	Data entry LSB	0 – 127

This is used in conjunction with the RPN parameter (see sections 3.2.2.9 and 3.2.6).

3.2.2.4 Main Volume

Control #	Parameter	Range
7	Main volume	0 – 127

3.2.2.5 Pan

Control #	Parameter	Range
10	Pan	0 – 127

A value of 0 corresponds to the Ieft channel, and a value of 127 to the right.

3.2.2.6 Expression

Control #	Parameter	Range
11	Expression	0 – 127

3.2.2.7 Hold 1

Control #	Parameter	Range
64	Hold 1	0 – 127 (0 – 63: off, 64 – 127: on)

3.2.2.8 Portamento

Control #	Parameter	Range
84	Portamento control	0 – 127

Portamento time is always set to 0.

3.2.2.9 (RPN) LSB / MSB

Control #	Parameter	Range
100	RPN LSB	0 – 127
101	RPN MSB	0 – 127

(Refer to section 3.2.7)

3.2.3 Program change

Refer to the Voice List on page add-2.

3.2.4 Pitch Bend

Pitch Bend resolution is 14 bit (-8192 – +8191).

3.2.5 Channel Mode Messages

The MU5 receives and responds to the following channel mode messages:

2nd byte	3rd byte	
120	0	All sound off
121	0	Reset all controllers
123	0	All note off
124	0	Omni off
125	0	Omni on
126	0 – 127	Mono
127	0	Poly

3.2.5.1 All Sounds Off

This mutes all sounds of the corresponding channel. However, when the sustain (damper) pedal is held or a note is held down on the keyboard, the sound continues.

3.2.5.2 Reset All Controllers

Controllers are set to the following values:

Controller	Reset Value
Pitch bend	±0 (normal)
Modulation	0 (OFF)
Expression	127 (Max)
Hold 1	0 (OFF)
RPN	(Not set. Internal data doesn't change.)

The following values are not reset: Program change, Bank select MSB/LGB, Volume, Pan, Pitch bend sensitivity, Fine tuning, Coarse tuning, and Local control.

3.2.5.3 All Notes Off

Note off is executed. However, if Hold 1 is on, the sound will not stop until a Hold 1 = off message is received.

3.2.5.4 Omni Off

Omni Off is executed. (Rest is the same as in "All Notes Off " above.)

3.2.5.5 Omni On

Since the MU5 has no such function, Omni On is not executed (Rest is the same as in "All Notes Off " above.)

3.2.5.6 Mono

Same as in "All Sounds Off " above. If the third byte is 0 – 16 (Mono value), the allocated channels are set to Mode 4 (m = 1)*.
* See the MIDI Implementation Chart on page add-24.

3.2.5.7 Poly

Same as in "All Sounds Off " above. If the third byte is 0 – 16 (Mono value), the allocated channels are set to Mode 3*.
* See the MIDI Implementation Chart on page add-24.

3.2.6 RPN (Registered Parameter Number)

The RPN MSB and RPN LSB must be sent first for the specific control parameter, followed by the data entry values. The MU5 receives and responds to the following RPN:

RPN MSB LSB	Data Entry MSB LSB	
$00 $00	$mm --	Pitch bend sensitivity mm : $00 – $18 (0 – 24 semitones) "--" : Not used Range is two octaves, selectable in one semitone steps. When power is turned on, this is set to two semitones.
$00 $01	$mm $11	Master fine tuning (mm,11) : ($00,$00) – ($40.$00) – ($7F,$7F) (-8192x100/8192) – 0 – (+8192x100/8192 cents)
$00 $02	$mm --	Master coarse tuning mm : $28 – $40 – $58 (-24 – 0 – +24 semitones) "--" : Not used
$7F $7F	$-- --	RPN Null "--" : Not used RPN or NRPN are not set. Internal data does not change.

The values set by using RPN are not reset, even when program change messages are received. If the parameter has a relative value, the actual range of adjustment may occasionally be narrower than the specified range (depending on the program number).

4. System Exclusive Messages

4.1 Parameter Change

The MU5 receives and responds to the following parameter change messages:

- Universal Real Time Message
  - Master Volume
- Universal Non Real Time Message
  - General MIDI Mode On
- Yamaha GM Exclusive Message
  - MIDI Master Tuning
- Parameter Changes Specific to MU5
  - System Data parameter change
  - Multi Part data parameter change
  - Reset All Parameters
  - System Parameter
  - Multi Parameter
  - All Parameter Reset
- Parameter Changes Specific to TG100

4.2 Universal Real Time Message

4.2.1 Master Volume

11110000	F0	= Exclusive status
01111111	7F	= Universal real time
01111111	7F	= ID of target device
00000100	04	= Sub-ID #1=Device control message
00000001	01	= Sub-ID #2=Master volume
0sssssss	SS	= Volume LSB
0ttttttt	TT	= Volume MSB
11110111	F7	= End of exclusive

or

11110000	F0	= Exclusive status
01111111	7F	= Universal real time
0xxxnnnn	XN	= Device number, xxx = Not used
00000100	04	= Sub-ID #1=Device control message
00000001	01	= Sub-ID #2=Master volume
0sssssss	SS	= Volume LSB
0ttttttt	TT	= Volume MSB
11110111	F7	= End of exclusive

Following reception of the above parameters, the Volume MSB affects the Master Volume of the System Parameters.

4.3 Universal Non Real Time Message

4.3.1 General MIDI Mode On

11110000	F0	= Exclusive status
01111110	7E	= Universal non-real time
01111111	7F	= ID of target device
00001001	09	= Sub-ID #1=General MIDI Message
00000001	01	= Sub-ID #2=General MIDI On
11110111	F7	= End of exclusive

or

11110000	F0	= Exclusive status
01111110	7E	= Universal non-real time
0xxxnnnn	XN	= Device Number, xxx = Not used
00001001	09	= Sub-ID #1=General MIDI message
00000001	01	= Sub-ID #2=General MIDI on
11110111	F7	= End of exclusive

Following reception of the above parameters, all MU5 parameters will be initialized (excepting Master Tuning). However, when Mute Lock of the System parameters is set to on, Receive Note Message of the Multi Part parameters is not initialized. Since one of these messages takes about 50 msec to process, allow a sufficient amount of time before transmitting the next message.

4.4 MU5 Native Parameter Change

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
0001nnnn	1N	= Device number
00101011	44	= MU5 Model ID
0aaaaaaa	aaaaaaa	= Start address 1st byte
0aaaaaaa	aaaaaaa	= Start address 2nd byte
0aaaaaaa	aaaaaaa	= Start address 3rd byte
0ddddddd	ddddddd	= Data
⎮	⎮	
⎮	⎮	
0ccccccc	ccccccc	= Checksum
11110111	F7	= End of exclusive

The sending device must send a separate header (address setting) for each individual parameter. For example, System parameters and Multi Part parameters are not continuous, and so they must be separated, with each header added individually. The following parameters must be separated into individual packets:

- System
- Multi Part
- Reset All Parameters

After adding the Start Address, Data and Checksum, the checksum's first 7 bit values will be 0.

If the received data is outside the "legal" range (i.e., higher or lower than the maximum and minimum set values at each address), the MU5 changes the value to the nearest maximum or minimum selling.

4.4.1 System Data Parameter Change

Refer to charts 1-1 and 1-2 on pages add-21 and add-22.

4.4.2 Multi Part Data Parameter Change

Refer to charts 1-1 and 1-3 on pages add-21 and add-22.

4.4.3 System Information

Upon reception of a Dump Request, the MU5 transmits the relevant data, but ignores all other incoming messages during transmission.

Refer to charts 1-1 and 1-4 on pages add-21 and add-23.

4.4.4 Reset All Parameters

11110000 F0	= Exclusive status
01000011 43	= YAMAHA ID
0001nnnn 1N	= Device number
00101011 44	= MU5 Model ID
00000000 00	= Start address 1st byte
00000000 00	= Start address 2nd byte
01111111 7F	= Start address 3rd byte
00000000 00	= Data
00000001 01	= Checksum
11110111 F7	= End of exclusive

This is used to reset all System parameters to their factory-set initial values. Since one of these messages takes about 120 msec to process, allow a sufficient amount of time before transmitting the next message.

4.5 TG100 Native Parameter Change

The MU5 receives and responds to the following TG100 parameter changes:

- System parameters
  - MASTER TUNE
  - TRANSPOSE
  - DEVICE NUMBER
  - MASTER VOLUME
- Multi Part parameters
  - VOICE BANK
  - PC VALUE
  - RX.CHANNEL
  - MONO/POLY MODE
  - DETUNE
  - NOTE SHIFT
  - VOLUME
  - VELOCITY SENSE
  - PANPOT (Not received for Voice #8)
  - NOTE LIMIT LOW
  - NOTE LIMIT HIGH
  - LFO SPEED
  - LFO DEPTH
  - LFO DELAY (Negative values are ignored.)
  - EG. ATTACK RATE
  - EG. RELEASE RATE
  - PITCH BEND RANGE
  - MOD LFO PITCH DEPTH
  - CHANNEL AFTER TOUCH PITCH CONTROL

If only Master Tune is received, the MU5 does not confirm with checksum.

The MU5 does not respond to the following parameters:

- System parameters
  - EXCLUSIVE RECEIVE SWITCH
  - PROGRAM CHANGE RECEIVE SWITCH
  - CONTROL CHANGE, VOLUME, EXPRESSION
  - SOUND MODULE MODE

- Multi Part parameters
  REVERB SEND DEPTH
- All Multi Common parameters
- All Drum Setup parameters
- Voice Memory
- Program Change Table

4.6 Dump request

The MU5 responds to dump requests for the following types of data:

- MU5 Native data
  1) System data
  2) Multi Part data
  3) System Information
- TG100 Native data
  1) System data
  2) Multi Part data
  3) Multi Common Parameter
  4) Drum Setup Parameter
  5) Voice Memory
  6) Program Change Table
  7) System Information

The MU5 cannot transmit a dump request.

Dump requests to the MU5 should follow format given below.

11110000	F0	= Exclusive status
01000011	43	= YAMAHA ID
0011nnnn	3n	= Device number
00101011	44	= MU5 Model ID
0aaaaaaa	aaaaaaa	= Start address 1st byte
0aaaaaaa	aaaaaaa	= Start address 2nd byte
0aaaaaaa	aaaaaaa	= Start address 3rd byte
0sssssss	sssssss	= Byte count bit 20 – bit 14
0sssssss	sssssss	= Byte count bit 13 – bit 7
0sssssss	sssssss	= Byte count bit 6 – bit 0
0ccccccc	ccccccc	= Checksum
11110111	F7	= End of exclusive

When the receive address of the dump request corresponds to the start address and the received dump request byte count is correct, the data is transmitted. (Refer to the tables at the end of this section for more information about the start address and byte count.)

The MU5 cannot send amounts of data greater than 513 bytes at a time. If a dump request exceeding 513 bytes is received, the MU5 breaks up the data into packets of 512 bytes or less and pauses for 120 msec or more before transmitting each packet.

After adding the Start Address, Byte Count and Checksum, the checksum's first 7 bit values will be 0.

The device making the dump request must include the corresponding parameter header for each data type (listed below). For example, if only one dump request header is used to request both System and Multi Part data, the MU5 will transmit only the System data.

- System
- Multi Part
- Reset All Parameters
- System Information

4.6.1 System Data Parameter Change

Refer to charts 1-1 and 1-2 on pages add-21 and add-22.

4.6.2 Multi Part Data Parameter Change

Refer to charts 1-1 and 1-3 on pages add-21 and add-22.

4.6.3 System Information Parameter Change

When a dump request is received, data can be transmitted but not received.

Refer to charts 1-1 and 1-4 on pages add-21 and add-23.

4.7 Yamaha TG100 Dump Request

The MU5 responds to portions of a dump request from the TG100. If the parameter ranges of both devices are the same, the data transmitted and received remains in its original state. If both devices have the same function yet their parameter ranges are different, the MU5 reformats the data before transmitting it.

- System parameters
  - MASTER TUNE
  - TRANSPOSE
  - DEVICE NUMBER
  - MASTER VOLUME
- Multi Part parameters
  - VOICE BANK
  - PC VALUE
  - RX.CHANNEL
  - MONO/POLY MODE
  - DETUNE
  - NOTE SHIFT
  - VOLUME
  - VELOCITY SENSE
  - PANPOT (Format is changed)
  - NOTE LIMIT LOW
  - NOTE LIMIT HIGH
  - LFO SPEED
  - LFO DEPTH
  - LFO DELAY (Format is changed)
  - EG. ATTACK RATE

EG. RELEASE RATE
PITCH BEND RANGE
MOD LFO PITCH DEPTH
CHANNEL AFTER TOUCH PITCH CONTROL
SYSTEM INFORMATION

For the following parameters, which are unavailable on the MU5, the MU5 sends fixed data.

- System parameters
  EXCLUSIVE RECEIVE SWITCH
  PROGRAM CHANGE RECEIVE SWITCH
  CONTROL CHANGE, VOLUME, EXPRESSION
  SOUND MODULE MODE
- Multi Part parameters
  REVERB SEND DEPTH
- All Multi Common parameters
- All Drum Setup parameters
- Voice Memory
- Program Change Table

5. Active Sensing (Status FE)

a) Transmission

Not sent.

b) Reception

If after receiving an active sensing (FE) message, and no data is received within 300 msec, All Sound Off, All Note Off and Reset All Controller functions will be executed, and will return to the condition as if no FE message had been received.

MIDI Parameter Charts

● Chart 1-1 : Parameter base map

Parameter change	
Start Address	Description
00 00 00	System
00 00 7F	All parameters reset
02 00 00	Multi Part 10
02 01 00	Multi Part 1
:	:
02 09 00	Multi Part 9
02 0A 00	Multi Part 11
:	:
02 0F 00	Multi Part 16
03 00 00	System Information

● **Chart 1-2 : MIDI Parameter Change table (SYSTEM)**

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00 00 00 00 01*	02	1C – E4	MASTER TUNE	-100 – +100 (cents) 1st bit 3–0 → bit 7–4 2nd bit 3–0 → bit 3–0	00 80 (80)
00 00 02	01	00 – 10	DEVICE NUMBER	0 – 15, 16 : all	10
00 00 03	01	00 – 7F	MASTER VOLUME	0 – 127	7F
00 00 04	01	28 – 58	TRANSPOSE	-24 – +24 (semitones)	40
00 00 05	01	00 – 01	MUTE LOCK	0 : off 1 : on	00
00 00 06	01	00 – 01	LOCAL CONTROL	0 : off 1 : on	01
TOTAL SIZE	07				

* Cannot be used as a start address.

● **Chart 1-3: MIDI Parameter Change table (MULTI PART)**

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
02 0n 00	01	00 – 7F	PART MODE	0 : normal	00 (Except for Part 10)
			(BANK SELECT MSB)	1 – 126 : no sound 127 : drum	7F (Part 10 only)
02 0n 01	01	00 – 7F	PROGRAM NUMBER	1 – 128	00
02 0n 02	01	00 – 10	RECEIVE CHANNEL	0 – 15 16 : OFF	Part No.
02 0n 03	01	00 – 01	RECEIVE NOTE MESSAGE	0 : OFF 1 : ON	01
02 0n 04	01	00 – 01	MONO/POLY MODE	0 : MONO 1 : POLY	01
02 0n 05	01	00 – 7F	VOLUME	0 – 127	64
02 0n 06	01	00 – 7F	PAN	0 : L64 1 : L63 : 64 : C (center) : 127 : R63	40
02 0n 07	01	28 – 58	NOTE SHIFT	-24 – +24 (semitones)	40
02 0n 08	01	00 – 7F	NOTE LIMIT LOW	C-2 – G8	00
02 0n 09	01	00 – 7F	NOTE LIMIT HIGH	C-2 – G8	7F
02 0n 0A 02 0n 0B*	02	1C – E4	PART TUNE	-100 – +100 (cents) 1st bit 3–0 → bit 7–4 2nd bit 3–0 → bit 3–0	08 00 (80)
02 0n 0C	01	28 – 58	PITCH BEND RANGE	-24 – +24 (semitones)	42
02 0n 0D	01	00 – 7F	VELOCITY SENSE	0 – 15	08
02 0n 0E	01	39 – 47	EG ATTACK RATE	-7–+7	40
02 0n 0F	01	39 – 47	EG RELEASE RATE	-7–+7	40
02 0n 10	01	39 – 47	LFO SPEED	-7–+7	40

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
02 0n 11	01	31 – 4F	LFO DEPTH	-15 – +15	40
02 0n 12	01	00 – 7F	LFO DELAY	0 – 127	00
02 0n 13	01	00 – 0F	MOD LFO PITCH DEPTH	0 – 15	0F
02 0n 14	01	28 – 58	CHANNEL AFTER TOUCH PITCH CONTROL	-24 – +24	40
02 0n 15	01	00 – 18	CHANNEL AFTER TOUCH LFO PITCH DEPTH	0 – 15	00
TOTAL SIZE	16				

Note:

• n : block number(0 - F) Part 1 n=1
: :
Part 9 n=9
Part 10 n=0
Part 11 n=A
: :
Part 16 n=F

* Cannot be used as a start address.

● Chart 1-4: MIDI Parameter Change table (SYSTEM INFORMATION)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
03 00 00	10	23	STRING	ASCII '#'	
03 00 01#		30	STRING	ASCII '0'	
03 00 02#		31	STRING	ASCII '1'	
03 00 03#		38	STRING	ASCII '8'	
03 00 04#		35	STRING	ASCII '5'	
03 00 05#		20	STRING	ASCII ' '	
03 00 06#		20	STRING	ASCII ' '	
03 00 07#		56	STRING	ASCII 'V'	
03 00 08#		45	STRING	ASCII 'E'	
03 00 09#		52	STRING	ASCII 'R'	
03 00 0A#		3D	STRING	ASCII '='	
03 00 0B#		31	STRING	ASCII '1'	
03 00 0C#		2E	STRING	ASCII '.'	
03 00 0D#		30	STRING	ASCII '0'	
03 00 0E#		30	STRING	ASCII '0'	
03 00 0F#		20	STRING	ASCII "	
TOTAL SIZE	0				

Note: 03 00 00 address can only be used as Start address.

adp-2

YAMAHA [Tone Generator] Date:27-JUL-1994
Model MU5 MIDI Implementation Chart Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	1 - 16	1 - 16	memorized
	Changed	1 - 16	1 - 16	
Mode	Default	x	3	
	Messages	x	3,4(m = 1) *1	
	Altered	**********	x	
Note Number		0 - 127	0 - 127	
	True voice	**********	0 - 127	
Velocity	Note ON	o 9nH,v=1-127	o 9nH,v=1-127	
	Note OFF	x 9nH,v=0	x	
After Touch	Key's	x	x	
	Ch's	x	o	
Pitch Bender		x	o 0-24 semi	
Control Change	0,32	o	o MSB only	Bank Select
	1	x	o	Modulation Wheel
	6,38	o	o	Data Entry
	7	o	o	Volume
	10	o	o	Panpot
	11	x	o	Expression
	64	x	o	Hold 1

MIDI Implementation Chart

	100,101	o	o	RPN LSB,MSB
	120	x	o	All Sound Off
	121	x	o	Reset All Cntrls
Prog Change	True #	o 0-127 **********	o 0-127	
System Exclusive		o	o	
System Common	Song Pos.	x	x	
	Song Sel.	x	x	
	Tune	x	x	
System Real Time	Clock	x	x	
	Commands	x	x	
Aux Mes-sages	Local ON/OFF	x	x	
	All Notes OFF	x	o(123-127)	
	Active Sense	x	o	
	Reset	x	x	

Notes: *1 ; m is always treated as "1" regardless of its value.

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO o : Yes
Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO x : No

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